

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions and listings of claims in the application:

**LISTING OF CLAIMS:**

1. **(currently amended):** A fusion protein composition comprising a fusion protein molecule of a binding protein and an antibody Fc region having complex type N-glycoside-linked sugar chains, wherein the complex type N-glycoside-linked sugar chains have a structure in which that does not contain fucose is not bound to N-acetylglucosamine in the reducing end in the sugar chains, and

wherein the binding protein comprises at least one protein selected from the group consisting of a single chain antibody, a soluble receptor and a ligand protein, and  
wherein the soluble receptor is a soluble TNF (tumor necrosis factor) receptor II  
comprising the amino acid sequence of SEQ ID NO: 64.

2. **(original):** The fusion protein composition according to claim 1, wherein the complex type N-glycoside-linked sugar chains are sugar chains in which 1-position of fucose is not bound to 6-position of N-acetylglucosamine in the reducing end through  $\alpha$ -bond in the sugar chains.

3. **(previously presented):** The fusion protein composition according to claim 1, wherein the antibody Fc region is an IgG class of a human antibody.

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4. **(original):** The fusion protein composition according to claim 3, wherein the antibody Fc region is an IgG1 class of a human antibody.

5. **(original):** The fusion protein composition according to claim 4, wherein the antibody fusion protein composition comprises an IgG1 class heavy chain constant region domain 2 (CH<sub>2</sub>) of a human antibody.

6. **(original):** The fusion protein composition according to claim 5, wherein the fusion protein composition comprises a hinge region, a heavy chain constant region domain 2 (CH<sub>2</sub>) and a heavy chain constant region domain 3 (CH<sub>3</sub>) of a human IgG1 class antibody.

**7-12. (canceled).**

13. **(withdrawn):** The fusion protein composition according to claim 1, wherein the single chain antibody is a bispecific single-chain antibody.

**14-15. (canceled).**

16. **(previously presented):** The fusion protein composition according to claim 14, wherein the fusion protein is produced by FERM BP-8499.

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**17. (withdrawn):** The fusion protein composition according to claim 1, wherein the ligand protein is LFA-3 (leukocyte function antigen-3).

**18. (withdrawn):** The fusion protein composition according to claim 17, wherein the ligand protein comprises the amino acid sequence represented by SEQ ID NO:65.

**19. (withdrawn):** The fusion protein composition according to claim 17, wherein the fusion protein is produced by FERM BP-8500.

**20. (currently amended):** The fusion protein composition according to claim 1, wherein the fusion protein molecule of the binding protein and the antibody Fc region form a dimer.

**21. (withdrawn):** A transformant obtainable by introducing a DNA encoding the fusion protein according to claim 1 into a host cell.

**22. (withdrawn):** The transformant according to claim 21, wherein the host cell is a cell in which a genome is modified so that an enzyme relating to synthesis of an intracellular sugar nucleotide, GDP-fucose or an enzyme relating to a modification of a sugar chain in which 1-position of fucose is bound to 6-position of N-acetylglucosamine in the

reducing end through  $\alpha$ -bond in the complex type N-glycoside-linked sugar chain is inactivated.

**23. (withdrawn):** The transformant according to claim 22, wherein the host cell is a cell in which all of alleles on a genome encoding an enzyme relating to synthesis of an intracellular sugar nucleotide, GDP-fucose or an enzyme relating to a modification of a sugar chain in which 1-position of fucose is bound to 6-position of N-acetylglucosamine in the reducing end through  $\alpha$ -bond in the complex type N-glycoside-linked sugar chain are knocked out.

**24. (withdrawn):** The transformant according to claim 22, wherein the enzyme relating to synthesis of an intracellular sugar nucleotide, GDP-fucose, is an enzyme selected from the group consisting of GDP-mannose 4,6-dehydratase (GMD) and GDP-4-keto-6-deoxy-D-mannose 3,5-epimerase (Fx).

**25. (withdrawn):** The transformant according to claim 24, wherein the GDP-mannose 4,6-dehydratase is a protein encoded by a DNA selected from the following (a) or (b):  
(a) a DNA comprising the nucleotide sequence represented by SEQ ID NO:1;  
(b) a DNA which hybridizes with a DNA consisting of the nucleotide sequence represented by SEQ ID NO:1 under stringent conditions and which encodes a protein having GDP-mannose 4,6-dehydratase activity.

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**26. (withdrawn):** The transformant according to claim 24, wherein the GDP-mannose 4,6-dehydratase is a protein selected from the group consisting of the following (a), (b) and (c):

- (a) a protein comprising the amino acid sequence represented by SEQ ID NO:2;
- (b) a protein consisting of an amino acid sequence wherein one or more amino acid(s) is/are deleted, substituted, inserted and/or added in the amino acid sequence represented by SEQ ID NO:2 and having GDP-mannose 4,6-dehydratase activity;
- (c) a protein consisting of an amino acid sequence which has 80% or more homology to the amino acid sequence represented by SEQ ID NO:2 and having GDP-mannose 4,6-dehydratase activity.

**27. (withdrawn):** The transformant according to claim 24, wherein the GDP-4-keto-6-deoxy-D-mannose 3,5-epimerase is a protein encoded by a DNA selected from the following (a) or (b):

- (a) a DNA comprising the nucleotide sequence represented by SEQ ID NO:3;
- (b) a DNA which hybridizes with a DNA consisting of the nucleotide sequence represented by SEQ ID NO:3 under stringent conditions and which encodes a protein having GDP-4-keto-6-deoxy-D-mannose 3,5-epimerase activity.

**28. (withdrawn):** The transformant according to claim 24, wherein the GDP-4-keto-6-deoxy-D-mannose 3,5-epimerase activity is a protein selected from the group consisting of the following (a) to (c):

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- (a) a protein comprising the amino acid sequence represented by SEQ ID NO:4;
- (b) a protein consisting of an amino acid sequence wherein one or more amino acid(s) is/are deleted, substituted, inserted and/or added in the amino acid sequence represented by SEQ ID NO:4 and having GDP-4-keto-6-deoxy-D-mannose 3,5-epimerase activity;
- (c) a protein consisting of an amino acid sequence which has 80% or more homology to the amino acid sequence represented by SEQ ID NO:4 and having GDP-4-keto-6-deoxy-D-mannose 3,5-epimerase activity.

**29. (withdrawn):** The transformant according to claim 22, wherein the enzyme relating to a modification of a sugar chain in which 1-position of fucose is bound to 6-position of N-acetylglucosamine in the reducing end through  $\alpha$ -bond in the complex type N-glycoside-linked sugar chain is  $\alpha$ 1,6-fucosyltransferase.

**30. (withdrawn):** The transformant according to claim 29, wherein the  $\alpha$ 1,6-fucosyltransferase is a protein encoded by a DNA selected from the group consisting of the following (a) to (d):

- (a) a DNA comprising the nucleotide sequence represented by SEQ ID NO:5;
- (b) a DNA comprising the nucleotide sequence represented by SEQ ID NO:6;
- (c) a DNA which hybridizes with a DNA consisting of the nucleotide sequence represented by SEQ ID NO:5 under stringent conditions and which encodes a protein having  $\alpha$ 1,6-fucosyltransferase activity;
- (d) a DNA which hybridizes with a DNA consisting of the nucleotide sequence

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represented by SEQ ID NO:6 under stringent conditions and which encodes a protein having  $\alpha$ 1,6-fucosyltransferase activity.

**31. (withdrawn):** The transformant according to claim 29, wherein the  $\alpha$ 1,6-fucosyltransferase is a protein selected from the group consisting of the following (a) to (f):

- (a) a protein comprising the amino acid sequence represented by SEQ ID NO:7;
- (b) a protein comprising the amino acid sequence represented by SEQ ID NO:8;
- (c) a protein consisting of an amino acid sequence wherein one or more amino acid(s) is/are deleted, substituted, inserted and/or added in the amino acid sequence represented by SEQ ID NO:7 and having  $\alpha$ 1,6-fucosyltransferase activity;
- (d) a protein consisting of an amino acid sequence wherein one or more amino acid(s) is/are deleted, substituted, inserted and/or added in the amino acid sequence represented by SEQ ID NO:8 and having  $\alpha$ 1,6-fucosyltransferase activity;
- (e) a protein consisting of an amino acid sequence which has 80% or more homology to the amino acid sequence represented by SEQ ID NO:7 and having  $\alpha$ 1,6-fucosyltransferase activity;
- (f) a protein consisting of an amino acid sequence which has 80% or more homology to the amino acid sequence represented by SEQ ID NO:8 and having  $\alpha$ 1,6-fucosyltransferase activity.

**32. (withdrawn):** The transformant according to claim 21, wherein the host cell is

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a cell selected from the group consisting of the following (a) to (h):

- (a) a CHO cell derived from Chinese hamster ovary tissue;
- (b) a rat myeloma cell line YB2/3HL.P2.G11.16Ag.20 cell;
- (c) a mouse myeloma cell line NSO cell;
- (d) a mouse myeloma cell line SP2/0-Ag14 cell;
- (e) a BHK cell derived from Syrian hamster kidney tissue;
- (f) a human leukemia cell line Namalwa cell;
- (g) an embryonic stem cell;
- (h) a fertilized egg cell.

**33. (withdrawn):** The transformant according to claim 21, wherein the transformant is FERM BP-8499.

**34. (withdrawn):** The transformant according to claim 21, wherein the transformant is FERM BP-8500.

**35. (withdrawn):** A process for producing the fusion protein composition according to any one of claims 1 to 20, which comprises culturing a transformant obtainable by introducing a DNA encoding the fusion protein according to claim 1 into a host cell, in a medium to form and accumulate the fusion protein composition in the culture and recovering and purifying the fusion protein composition from the culture.

**36. (currently amended):** The fusion protein according to claim 1 obtained by a process comprising culturing a transformant with DNA encoding said fusion protein in medium to form and accumulate said fusion protein in culture, and recovering and purifying the antibody-fusion protein from the culture.

**37. (previously presented):** A medicament comprising the fusion protein composition according to claim 1 and a pharmaceutically acceptable carrier.

**38. (withdrawn):** A method for preventing or treating tumor, inflammatory diseases or autoimmune diseases, comprising administering to a subject in need thereof an effective amount of the fusion protein composition according to claim 1.

**39. (withdrawn):** The method according to claim 38, wherein the tumor is blood tumor or cancer.